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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,543	01/12/2004	Jae-Bon Koo	6161.0124.US	9288
58027 7590 02/23/2007 H.C. PARK & ASSOCIATES, PLC 8500 LEESBURG PIKE SUITE 7500 VIENNA, VA 22182			EXAMINER ERDEM, FAZLI	
			ART UNIT 2826	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/23/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/754,543

Applicant(s)

KOO ET AL.

Examiner

Fazli Erdem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 6-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 39 and 40 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 6-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Examiner's Comment

Examiner is including Koo et al. (6,876,001) reference because, although it is commonly owned with the current application, it teaches the crystal grain configuration for the driving and the pixel/switching TFTs.

Allowable Subject Matter

1. Claims 39 and 40 allowed.
2. Regarding Claim 39, prior art failed to establish driving thin film transistors connected between the sub-pixels where the thickness of the channel regions of the thin film transistors are different for each of the colors of the sub-pixels
3. Regarding Claim 40, prior art failed to establish a pixel unit thin film transistor and a circuit unit transistor (examiner takes the understanding that circuit unit transistor is a driving transistor) where the thickness of the channel are of the circuit unit (driving) thin film transistor is thinner than the thickness of the channel area of the pixel unit thin film transistor.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
1. The term "relatively thinner thickness" in claims 1, 2 and 6-37 is a relative term which renders the claim indefinite. The term "relatively thinner thickness" is not defined by the claim,

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the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

2. Claims 27 and 28 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In Claim 24, the thickness of the channel area of the circuit unit thin film transistor is claimed to be thinner than the thickness of the channel area of the pixel unit thin film transistor. However, in claims 26 and 27, which depend on claim 24, the thickness of the channel area of the circuit unit thin film transistor is claimed to be larger than the pixel unit thin film transistor.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 6-11, 24 and 32-38, rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota (JP 2003/84307) in view of Yoneda (2005/0068272).

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Regarding Claims 1, 2 and 6-37, The applicant's claims 1, 2 and 6-37 does not distinguish over the Hirota and Yoneda references regardless of the process used to form channel/active layer, because only the final product is relevant, not the recited process of "polysilicon is formed in a crystallization method using laser..... formed by irradiating the laser to the regions simultaneously" See *SmithKline Beecham Corp. v. Apotex Corp.*, Fed. Cir., No. 04-1522, 2/24/06 ("While the process set forth in the product-by-process claim may be new, that novelty can only be captured by obtaining a process claim.")

Note that when "product by process" claiming is used to describe one or more limitations of a claimed product, the limitations so described are limitations of the claimed product per se, no matter how said product is actually made. In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear. See also MPEP 706.03(e).

The Federal Circuit recently revisited the question of whether a "product by process" claim can be anticipated by a reference that does not recite said process. See *SmithKline Beecham Corp. v. Apotex Corp.*, 78 USPQ2d 1097 (Fed. Cir, 2006). The Federal Circuit cited with approval this Office's current statement of the law, found in MPEP § 2113:

[Even] though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Id. at 1101. The Federal Circuit held this statement to be consistent with its own views on this topic, as well as various Supreme Court rulings, notably *Gen. Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 373 (1938) ("Although in some instances a claim may validly describe a new product with some reference to the method of production, a patentee who does not distinguish his product from what is old except by reference, express or constructive, to the process by which he produced it, cannot secure a monopoly on the product by whatever means produced."). Id.

Regarding Claim 1, Hirota discloses an electro-optical device, manufacturing method thereof and projection type display device where in Fig. 1 it is disclose a light emitting device and at least two or more thin film transistors, switching TFTs 30, and driving TFTs 80, where the thickness of the driving TFTs 80 is different from the TFTs 30, wherein the channel

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semiconductor active layer (channel area/field) is formed using polycrystalline silicon for both TFTs. Hirotaka fails to disclose the required crystal grain size of the driving TFTs to be smaller than the switching TFTs 30. However, Yoneda discloses an electroluminescent display device and manufacturing method of the same where in paragraph 40, driving TFTs have a grain size smaller than the switching/pixel TFTs.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required grain size smaller in driving TFTs than the switching TFTs in Hirotaka in order to have a driving TFT with lower carrier mobility as explained in paragraph 41 of Yoneda.

Regarding Claim 2, Hirotaka disclose the driving TFT with larger channel thickness in Fig. 1 and Yoneda discloses the carrier mobility in paragraph 41.

Regarding Claim 6, as disclosed in paragraph 68, the flat panel display device of Hirotaka includes a switching thin film transistor 30 for transmitting data signal and a driving (actuation) thin film transistor 80 for operating the light emitting device so that a predetermined current flows in the emitting device according to the data signal and where the thickness of the channel region of the switching transistor 30 is thinner than the thickness of the channel region of the driving (actuation) thin film transistor 80.

Regarding Claim 7, in paragraph 68 of Hirotaka, switching thin film transistor 30 has a channel thickness of 30-80 nm or 300-800 Angstroms

Regarding Claim 8, in paragraph 68 of Hirotaka, driving/actuation thin film transistor 80 has a channel thickness of 150 nm or 1500 Angstroms

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Regarding Claim 9, in paragraph 40 of Yoneda, the pixel TFT 10 and driving TFT 85 both have polysilicon as the channel layer and the grain size of polysilicon layer of the pixel TFT 10 is larger than the grain size of the polysilicon layer of the driving TFT 85.

Regarding Claim 10, in paragraph 42 of Yoneda, both the pixel TFT 10 and the driving TFT 85 has polysilicon as the channel layer where the polysilicon layer is formed using laser.

Regarding Claim 11, in paragraph 42 of Yoneda, the simultaneous irradiation of laser is disclosed.

Regarding Claim 24, in Fig. 7 and paragraph 68 Yoneda discloses a pixel area B including a plurality of light emitting device and a circuit area B' controlling a signal applied to the pixel area, wherein the thin film transistor includes a pixel unit (pixel switching) TFT 30 which is located on the pixel area B and TFT 80 which is located on the circuit area (driving area) B', the thickness of the channel area of the circuit unit (driving) thin film transistor 80 is thinner

Regarding Claim 32, in Fig. 7 and paragraphs 13 and 14 of Yoneda, the switching thin film transistor 30 is P type and the driving thin film transistor 80 is N type and the thickness of the channel region of the P type switching thin film transistor 30 is thinner than the thickness of the channel region of the N type driving thin film transistor 80.

Regarding Claim 33, in paragraph 68 of Hirotaka, P type switching thin film transistor 30 has a channel thickness of 30-80 nm or 300-800 Angstroms

Regarding Claim 34, in paragraph 68 of Hirotaka, N type driving/actuation thin film transistor 80 has a channel thickness of 150 nm or 1500 Angstroms

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Regarding Claim 35, in paragraph 40 of Yoneda, the pixel P-type TFT 10 and N-type driving TFT 85 both have polysilicon as the channel layer and the grain size of polysilicon layer of the the pixel TFT 10 is larger than the grain size of the polysilicon layer of the driving TFT 85.

Regarding Claim 36, in paragraph 42 of Yoneda, both the P-type pixel TFT 10 and the driving N-type TFT 85 has polysilicon as the channel layer where the polysilicon layer is formed using laser.

Regarding Claim 37, in paragraph 42 of Yoneda, the simultaneous irradiation of laser is disclosed.

Regarding Claim 38, Fig. 7 of Yoneda discloses a light emitting device and at least two or more thin film transistors 30, 80 and 90 including semiconductor active layers having channel regions, wherein a thickness of the channel regions of the thin film transistors 30 and thin film transistors 80/90 are different from each other, wherein the thin film transistors include a switching thin film transistor 30 and a driving (actuation) thin film transistors 80/90 so that a predetermined current flows in the light emitting device according to the data signal and where the thickness of the channel region of the switching thin film transistor 30 is thinner than the thickness of the channel region of the driving (actuation) thin film transistors 80/90.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (571) 272-1914. The examiner can normally be reached on M - F 8:00 - 5:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FE

February 3, 2007


SUE A. PURVIS
SUPERVISORY PATENT EXAMINER